

"1814" but that is the date of the first part; the first part (no. 322) was issued in November 1813. Thus *Rudbeckia columnaris* Sims (*Bot. Mag.* 39: t. 1601; Dec. 1813) antedates *R. columnaris* Pursh (Jan. 1814) and *Lophiola aurea* Ker-Gawl (*Bot. Mag.* 39: t. 1596; Nov. 1813) antedates *Conostylis americana* Pursh (Jan. 1814).—W. T. STEARN.

LILIUM MICHIGANENSE, L. CANADENSE AND
L. SUPERBUM

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IN an article in this Journal¹, in which a wild lily from the Lake Michigan dune country of northern Indiana, called by some botanists *L. michiganense*, was compared with typical *L. superbum*, mostly from the Atlantic Coastal Plain, I concluded that *L. michiganense* was not valid, being in reality *L. superbum*. To this article Dr. Wherry² took considerable exception, concluding that *L. michiganense* was nearer *L. canadense* than it was to *L. superbum*, and that all three should be considered distinct, "though not necessarily in species status". Constructive criticism is welcome, but, after further field and herbarium study, I can see no reason for separating *L. michiganense* from *L. superbum* and, furthermore, *L. superbum* and *L. canadense* are distinct species.

In the dune country of Indiana there are many areas of marsh, bordering which in some instances are low woods. The lilies are found in both habitats, mostly, however, in the open. Much of this country has been drained and turned to cultivation, but there are still hundreds of flowering specimens, and many more plants which have deteriorated to a degree where they no longer flower, although they persist in a vegetative state for many years. I think no botanist would doubt after seeing these lilies that all the plants were of the same species.

LEAF-INDUMENT. I cannot see that this is a good diagnostic character, as it is obviously a matter of environment in the specimens I have studied. The spring and early summer of 1943

¹ *Lilium superbum and L. michiganense*. RHODORA 44: 220. 1942.

² *Relationship of Lilium michiganense*. RHODORA 44: 453. 1942.

being unusually wet, some plants were found in the open with the spicules reduced to little more than papillae, whereas they are usually well-developed. In woods spicules are present usually only along the margins, the rest of the leaf being entirely smooth. In one locality, where the lilies seemed more exposed than usual, spicules were present over the entire lower surface. This is true also of the first leaves to appear above ground, which are little more than scales, and have a protective function. In my first paper were noted two specimens of typical *L. superbum* from xeric habitats, one in a salt marsh, and the other from dry, sandy soil, and the leaves of these were as roughened as any I have ever seen in the Indiana dunes.

COLORATION. In 32 specimens the green zone was 10 or more mm. long in 22 cases, too many to be considered as otherwise than normal. This zone was distinct except toward the apical end, and was visible or invisible when the flower was viewed face-on according to the length of the zone and the curvature of the segments.

STAMENS. As to anther-length, of 33 specimens 9 were 12 or more mm. long, the required length, it seems, for *L. superbum*. Care was taken to examine only those flowers which seemed typical, and 9 of 33 seems rather too many to be called "aberrant". Some of the flowers were studied at mid-anthesis; others could not be studied until after the pollen had been shed, when the anthers were considerably shortened. In a 2-flowered plant the anthers of one at mid-anthesis were 12 mm. long, whereas in the other flower with shed pollen the length was only 8 mm. The average anther-length was slightly more than 10 mm., whereas two years ago, as reported in my first paper, the average was about 16 mm.³ The plants of the dune country are gradually deteriorating and consequently bearing smaller flowers, and it has been my observation that small flowers mean short anther-length as a rule. In my experience garden specimens also deteriorate after a few years.

What seems to me an important, and in my experience an entirely constant, character separating *L. superbum* from *L. canadense* is in the filaments. In *L. superbum* the upper portions

³ A correction should be made in my first paper, p. 226, line 20. 11-12 mm. should read 11-22 mm.

of the filaments are strongly curved outward for about one-third (or perhaps more) the entire length, causing the anthers to be widely separated. In *L. canadense* the filaments are straight or nearly so throughout, causing the anthers to form a close cluster about the style. These differences are beautifully illustrated in paintings by Miss Mary E. Eaton, where *L. superbum* and *L. canadense* are shown on the same page⁴. All specimens of the so-called *L. michiganense* I have seen have filaments of the *L. superbum* type.

RIBBING OF PERIANTH-SEGMENTS. Of 30 specimens, except for two examples, the sepal-midrib was of the *L. canadense* type as shown by Wherry. One of the exceptions showed two ridges much more rounded than those illustrated by Wherry for *L. superbum*; the other showed a number of veins which were well-raised, instead of being imbedded in the other tissues. The petal-midrib in these 30 plants showed horizontal or nearly horizontal ridges in 28 cases, the other two being only slightly rounded. Whether the ridges were narrow or wide seemed to depend on the size of the flower, there being some variance in this respect. On the whole the petal-midrib is of the *L. superbum* type.

SEEDS. Seeds of the Indiana dune plants resemble those of typical *L. superbum* from the Atlantic Coastal Plain, in size, as well as other features. But they are much larger than the seeds of *L. canadense*, a typical seed being 10 mm. long (including wing) as compared with 6 mm. long in *L. canadense*.

CONCLUSIONS. It seems to me that *L. superbum* and *L. canadense* are distinct species. I cannot find any vegetative character that will sharply differentiate the two, but there are fundamental differences in the reproductive structures, and I believe botanists agree that such characters are much more stable than the vegetative ones. The so-called *L. michiganense* resembles altogether too much *L. superbum* to be removed from it, in my opinion. Mr. George L. Slate, an authority on lily-culture, in a recent article⁵ does not recognize *L. michiganense*, although he mentions *L. superbum* and *L. canadense*. Slate gives the flowering time of *L. superbum* as July, the usual time for the lilies of the dune country to flower.

⁴ The Book of Wild Flowers, p. 154. National Geographic Soc., 1933.

⁵ The Home Garden 1: 56. July, 1943.

The following key may be helpful in distinguishing *L. superbum* from *L. canadense*.

- PERIANTH-segments strongly recurved; upper portion of filaments strongly curved outward, anthers widely separated; seeds comparatively large.....*L. superbum*.
 PERIANTH-segments moderately recurved; filaments straight or nearly so; anthers close together or in contact; seeds comparatively small.....*L. canadense*.

I wish to express my appreciation of courtesies extended by the staff of the Department of Botany of the Field Museum of Natural History.

GARY, INDIANA.

EDIBLE PLANTS.—Most botanists know ten or a dozen wild plants which are useful as food but after reading this excellent and authoritative work by Professors Fernald and Kinsey¹ the number available will reach well over 1,000. It is to be hoped that the welcome and enthusiastic cry, "There's such and such a genus, new to the region", so familiar to field-botanists, will not be too suddenly changed to, "There's Spring-Cress, we'll have it for salad at lunch!" Not only does the book make you want to get out the vasculum and digger which have been put away for the winter, but it stirs the desire for field-work of quite a different sort. Many species can be eaten during the cold months and if you read carefully, you will realize that the following of this fascinating subject can keep you adequately supplied with nourishment, if not with luxuries, for twelve months of the year.

The book has long been in preparation and that it is published during these critical times is a welcome fact; with its aid many ration coupons will be saved. It is a comprehensive volume, embracing all groups of plants, both cryptogams as well as phanerogams, and is copiously illustrated. Each species is clearly described so that one should encounter no difficulty in the identification of the plants. However, to make quite certain that no mistakes will be made on the part of those persons not intimately acquainted with the flora of the region, an excellent chapter entitled "POISONOUS FLOWERING PLANTS LIKELY TO BE MISTAKEN FOR EDIBLE SPECIES" is included. Here one finds a complete discussion of the poisonous elements, a warning as to which edible plants the poisonous ones closely resemble, and a lucid description of the lethal organs. Because these poisonous species are further classified as to the part containing the toxic principle, *i. e.* whether root, stem, leaf or fruit, it is difficult to see how errors in determination can possibly occur. In addition, careful and explicit instructions concerning the poisonous fungi are included. These are printed in **bold face type** which is a further help.

In the organization of the chapters the authors have shown excellent judgment. The first, a long one, classifies the edible wild plants according

¹ *Edible Wild Plants of Eastern North America*, by MERRITT LYNDON FERNALD and ALFRED CHARLES KINSEY. (Special Publication, THE GRAY HERBARIUM OF HARVARD UNIVERSITY.) The Idlewild Press, Cornwall-on-Hudson, N. Y., 1943. xiv + 452 pp. \$3.00.